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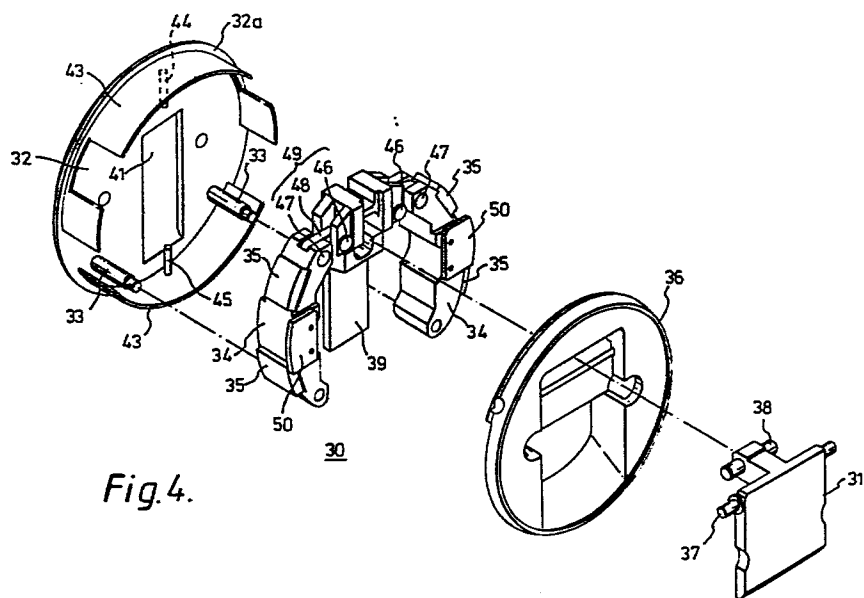
(71) Applicant: **NEC CORPORATION**  
**33-1, Shiba 5-chome, Minato-ku**  
**Tokyo 108(JP)**

(72) Inventor: **Noguchi, Kunio**  
**C/o NEC Corporation 33-1 Shiba 5-Chome**  
**Minato-ku Tokyo(JP)**

(74) Representative: **Orchard, Oliver John**  
**JOHN ORCHARD & CO. Staple Inn Buildings North High**  
**Holborn**  
**London WC1V 7PZ(GB)**

(54) **Mount for magnetic tape reels.**

(57) A tape reel fixing mechanism includes a circular housing (30) including a base plate and a circumferential side wall (43) supplied with rotary force by a tape reel driving means; pins (33) planted in the vicinity of an outer circumferential portion of the base plate and extending parallel to the side wall; collets (34) pivotably mounted at respective ends portion on the pins, the collets having arcuate outer circumferential surfaces with a curvature similar to that of the circular housing, and elastic members (35) provided on different portions of the outer circumferential surfaces; a guide member (41) provided in the central portion of the base plate; a slide cam (39) engaged with the free ends of the collets and guided by the guide member; and a lever (31) engaged with the slide cam for enabling the slide cam to slidably move on the guide member, the collets turning in the direction of the outer circumferential side wall and the axis of the housing, the elastic members (35) thereby pressing against a tape reel and releasing the tape reel by operating the lever.



# MOUNT FOR MAGNETIC TAPE REELS

## BACKGROUND OF THE INVENTION:

This invention relates to the construction of a magnetic tape device used as a memory device for computers, and more particularly to the construction of a mount for  
5 magnetic tape reels wound a magnetic tape therearound, and for transmitting the rotary force to the magnetic tape reel.

In a mount for magnetic tape reels of this kind, a tape reel is set thereon and rotated around the axis  
10 of a drum type body of the mount by a tape reel-driving motor. It is required that this mount reliably transmits the rotary force from the driving motor to a tape reel set on the mount, i.e. a tape reel is certainly fixed on the mount in a reliable manner without causing a slip occurring  
15 between the mount and the tape reel. In order to meet the above requirements, a member for pressuring the tape reel from the axis of the mount toward the outside thereof is provided in the interior of the mount. Therefore, the tape reel set on the mount can be fixedly held by this  
20 member. This pressure member is so provided that the pressure member can be project to and retracted in the mount housing. In order to operate the pressure member, a lever is further provided on its outer portion of the mount. When the pressure member is retracted in the

mount housing by operating the lever, an operator can set or remove a tape reel on or from the mount. In order to fix the tape reel to the mount, the lever is operated to project the pressure member out of the circumferential surface of the mount.

In a conventional tape reel fixing mechanism of this kind, a member for pressing an inner circumferential surface of a tape reel is provided in two such portions of a mount that substantially correspond to diametrically opposite portions of the inner circumferential surface of the tape reel. Accordingly, the rotational axis of the tape reel tends to be inclined with respect to the rotational axis of a mount around the mentioned diametrical line.

Consequently, an edge portion of a tape comes into contact with a tape reel flange and damaged when it draws out from the tape reel. Furthermore, when a magnetic tape device has been set under uncomfortable conditions, a member for pressing the tape reel sticks to an inner circumferential surface of the tape reel in some cases. In such a case, the pressure member can not be returned to its release position by the force of a pressure-releasing plate spring alone. This prevents the tape reel from being removed from the mount.

SUMMARY OF THE INVENTION:

Therefore, it is an object of the present invention to provide a magnetic tape fixing mechanism which enables

the rotational axis of a settled tape reel not to be inclined with respect to that of a mount, while the magnetic tape runs.

It is another object of the present invention to  
5 provide a magnetic tape fixing mechanism which enables a magnetic tape reel to be fixedly set on and to removed from a mount reliably and smoothly by an operation of a lever.

According to the present invention, a novel magnetic  
10 tape fixing mechanism can be obtained, which comprises a circular housing supplied with the rotary force by a tape reel driving motor, collets mounted pivotably on pins provided on a base plate of the housing and having elastic members on different portions of their respective outer  
15 circumferential surfaces, a slide cam slidably provided in the central portion of the housing and enabling the collets to turn around the pins, and a lever for operating the slide cam, the lever being operated to move the collets pivotally to project to or retracted in an outer  
20 circumferential surface of the circular housing, and thereby, the elastic member pressing an inner circumferential surface of a tape reel via the collets or removing from the tape reel, and the directions of the pressure of the elastic member to the inner circumferential surface of the  
25 tape reel having a predetermined angle.

BRIEF DESCRIPTION OF THE DRAWINGS:

The above-mentioned and other objects, features and advantages of the present invention will be better understood from the following detailed description of preferred embodiments of the present invention taken in conjunction with the accompanying drawings, wherein:

Figs. 1(a) and 1(b) illustrate the construction of an example of a conventional reel fixing mechanism in a tape reel setting or removing mode, wherein:

10        Fig. 1(a) is a plan view in section, and  
         Fig. 1(b) is a sectional view taken along the line I-I shown in Fig. 1(a);

         Figs. 2(a) and 2(b) illustrate the construction of the conventional reel fixing mechanism shown in Figs.  
15        1(a) and 1(b), in a tape reel fixing mode, wherein:

         Fig. 2(a) is a plan view in section, and  
         Fig. 2(b) is a sectional view taken along the line II-II shown in Fig. 2(a);

         Fig. 3 is a plan view of a mount for tape reels  
20        according to a first embodiment of the present invention;

         Fig. 4 is an exploded perspective view of a tape reel fixing mechanism used in the first preferred embodiment shown in Fig. 3;

         Figs. 5(a) and 5(b) are exploded views of the  
25        construction of the tape reel fixing mechanism shown in Fig. 4, which are in a tape reel setting or removing mode, wherein:

Fig. 5(a) is a plan view in section, and

Fig. 5(b) is a sectional view taken along the line IV-IV shown in Fig. 5(a);

Figs. 6(a) and 6(b) are exploded views of the construction of the tape reel fixing mechanism shown in Fig. 4, which are in a tape reel fixing mode, wherein:

Fig. 6(a) is a plan view in section, and

Fig. 6(b) is a sectional view taken along the line V-V shown in Fig. 6(a);

Fig. 7 is a plan view of an eccentric pin used in the tape reel fixing mechanism shown in Fig. 4;

Fig. 8 is an exploded perspective view of a tape reel fixing mechanism used in a second embodiment of the present invention; and

Fig. 9 is a plan view of a tape reel fixing mechanism used in a third embodiment of the present invention.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS:

Before describing the embodiments of the present invention, a conventional tape reel fixing mechanism of the prior art will be described with reference to the drawings.

In a reel fixing mechanism for a conventional mount for tape reels, which was used in a magnetic tape device N7611 manufactured by NEC Corporation, a pair of collets are pivotably mounted on pivots 2, which are planted in a

lower housing member 1 of a mount for reels, as shown in Figs. 1(a), 1(b), 2(a) and 2(b). The lower housing member 1 is provided with openings 1a on its circumferential side wall. Rubber members 4 are fixed on the respective outer circumferential surfaces of the collets 3, and enable to project outward from the openings 1a when the collets 3 are pivotally moved in the outward direction in the lower housing member 1. Plates 5 are further provided on the respective upper surfaces of the collets 3. The free end portions of the plates 5 are positioned on the inside of a broken line 6 when the collets 3 are pivotally moved toward the axis of the mount, and project to the outside of the line 6 when the collets 3 are pivotally moved in the reverse direction. Plate springs 7 are fixed on free ends of the collets 3 so as to be positioned between the collets 3 and an inner surface of the side wall of the lower housing member 1. The collets 3 receive the pivotal forces directing toward the center of the lower housing member 1 owing to the plate springs 7. Inclined surfaces 3a are formed at the respective free end portions of the collets 3.

A slide cam 9 is provided in the central portion of the mount so as to slidably move in the lateral direction by guiding a guide member 8a formed on an upper housing member 8. Inclined surfaces 9a are formed at the front end portion of the slide cam 9, and are engaged with the



inclined surfaces 3a formed on the collets 3. The slide  
cam 9 further has a bearing 9b, and a cam-engaged shaft 11  
passed through one end portion of an L-shaped lever 10 is  
fitted to the bearing 9b. A pivot 12 provided at an  
5 intermediate portion of the lever 10 is joined to the  
upper housing member 8. Accordingly, when the lever 10  
is moved vertically, the slide cam 9 is laterally slided.  
The movement of the slide cam 9 is transmitted to the  
collets 3 engaged with the inclined surfaces 9a formed  
10 on the slide cam 9. Accordingly, the collets 3 are turned  
arround the pivots 2 by an operation of the lever 10.

As shown in Figs. 1(a) and 1(b), when a tape reel  
is not set on the mount, the lever 10 is in an upper  
position, the slide cam 9 is in a right-hand position,  
15 and the collets 3 are in positions closer to the axis of  
the mount owing to the resilient force of the plate  
springs 7. In this case, the free ends of the rubber  
members 4 and plates 5 provided on the collets 3 are  
positioned at the inside of the broken line 6 representing  
20 an inner circumferential surface of a tape reel.

Therefore, a tape reel can be inserted into this mount.

In order to fix a tape reel on this mount, the  
lever 10 is lowered as shown in Figs. 2(a) and 2(b).  
As a result, the slide cam 9 is moved left, and the  
25 inclined surfaces 9a are slided on the inclined surfaces  
3a of the collets 3, so that the collets 3 are expanded.

Since the collets 3 are expanded to the outside of the mount turning around the pivots 2, the free ends of the rubber members 4 and plates 5 project to the outside of the broken line 6. Accordingly, the tape reel inserted  
5 in the mount is pressed at its inner circumferential surface 6 by the rubber members 4, and a reel edge of the tape reel is held by the plates 5. The plates 5 are provided for the purpose of preventing the lever 10 from being lowered excessively only when a tape reel is inserted  
10 in an inclined state to a mount. That is, when a tape reel is not inserted properly to the mount, the plates 5 impinge upon an inner circumferential surface of the tape reel by lowering the lever 10, and the lever 10 cannot be lowered any more.

15 In order to remove a tape reel, which is fixedly set on a mount, the lever 10 is raised. Consequently, the slide cam 9 is moved to right, and the inclined surfaces 9a at its front end portion are slid on the inclined surfaces 3a of the collets 3. Since the expanded force  
20 of the slide cam 9 is released, the collets 3 are turned toward the axis of the mount owing to the resilient force of the plate springs 7. As a result, the inner circumferential surface of the tape reel is released from the pressure from the rubber members 4 to render  
25 the tape reel ready to be removed from the mount.

In the above-described conventional reel fixing mechanism, the rubber members 4 for pressing the inner circumferential surface of a tape reel are provided on the collets at the portions substantially corresponding to two diametrically opposite portions of the inner circumferential surface of the tape reel. Therefore, the rotational axis of the tape reel tends to be inclined with respect to the rotational axis of the mount around the mentioned diametrical line. Consequently, an edge portion of a tape comes into contact with a reel flange and damaged when it draws out from the tape reel.

Furthermore, when a magnetic tape device has been set under uncomfortable conditions, the rubber members 4 on the collets 3 stick to an inner circumferential surface of the tape reel in some cases. In such a case, the collets 3 are not often returned to their release positions shown in Fig. 1 by the force of the plate springs 7 alone. This prevents the tape reel from being removed from the mount. Furthermore, when a tape reel is set on or removed from a mount, the frictional force occurs between the inclined surfaces 9a of the slide cam 9 and those 3a of the collets 3. Accordingly, these contact surfaces are worn early and the dust occurs in the mount. Consequently, a stable operation of the mount gradually becomes unable to be obtained.

The embodiments of the present invention will now be described.

Referring to Fig. 3, a tape reel 20 is fixedly set on a mount 30, and is rotated around its rotational axis by receiving the driving force from a driving motor.  
5 A lever 31 is provided on a front surface of the mount 30. The fixing and removing of a tape reel 20 are done by operating the lever 31.

Referring to Figs. 4, 5(a), 5(b), 6(a), 6(b) and 7,  
10 collets 34 rotatable around two eccentric pins 33 are provided on a lower housing member 32 of the mount 30. In each of the eccentric pins 33, the axis A of a tap 33a and the axis B of a shaft 33b around which the collet 34 is turned, have an eccentric relation as shown in Fig. 7.  
15 The rotational axis B of the collet 34 can be transferred by turning a screw portion 33c of the eccentric pin 33, which projects onto the outside of the lower housing member 32. Two rubber members 35 are disposed on the outer circumferential surface of the each collets 34, and  
20 are aligned with each other in the circumferential direction of the collets 34 and fixed thereto.

A lever 31 is pivotably joined to an upper housing member 36 with a pin 37, and a rod 38 is provided at one end of the lever 31. The rod 38 is engaged with a rod  
25 receiver 40 formed on a slide cam 39 and transmits the pivotal movement of the lever 31 to the slide cam 39.

The sliding direction of the slide cam 39 is restricted by a groove 41 formed on a center portion of the lower housing member 32 and a guide member 42 integrally formed with the upper housing member 36. The slide cam 39 can be  
5 slide to right and left by guiding the groove 41 and the guide member 42. Namely, when the lever 7 is moved in the direction of a dual arrow C, the slide cam 39 is slided in the lateral direction. The lateral movement of the slide cam 39 is restricted by adjusting screws 44 and 45, which  
10 are provided on side walls 43 of the lower housing member 32 contacting an inner circumferential surface of a tape reel 20, and which extend to restricted positions of the movement of the slide cam 39.

The movement of the slide cam 39 is transmitted to  
15 the collets 34 via link mechanisms 49, each of which consists of a pin 46 provided at one end portion of the slide cam 39, a pin 47 provided at a free end portion of a collet 34, and an arm 48 holding the pins 46 and 47 at its both end portions. When the lever 31 is in a raised  
20 state as shown in Figs. 5(a) and 5(b), the slide cam 39 is moved to right, so that the collets 34 are turned toward the center of this mechanism. When the lever 31 is in a lowered state as shown in Figs. 6(a) and 6(b), the slide cam 39 is moved to left, so that the collets 34  
25 are turned toward an outer circumferential wall of this mechanism. The rubber members 35 fixed to the collets 34

are so arranged that the rubber members 35 are removed from an inner circumferential surface 21 of the setting tape reel 20 when the collets 34 are in an inwardly turned state, and pressed against the mentioned surface 21 when the collets 34 are in an expanded state.

Plates 50 are disposed on intermediate portions of the flat side surfaces opposite to the upper housing member 36 of the collets 34. The plates 50 are provided for the purpose of preventing the collets 34 from being moved outward by operating the lever 31 in the case where the tape reel 20 is not properly set to the mount. When the collets 34 are drawn inward to the center of the mount 30, outer circumferential surfaces 50a of the plates 50 are positioned in the inside of the inner circumferential surface 21 of the tape reel 20. When the collets 34 are moved outward to the outer circumferential wall of the mount 30, the outer circumferential surfaces 50a project outward from the inner circumferential surface 21 of the tape reel 20. When the tape reel 20 is set properly to the mount 30, the collet 34 can be expanded in the outward direction to the outer circumferential wall of the mount 30. Accordingly, the inner circumferential portion of the tape reel 20 is sandwiched between the plates 50 and an edge portion 32a of the lower housing member 32. When the tape reel is not set properly, i.e. when the tape reel is set to the mount 30 having a gap distance

between the circumferential side wall opposite to the mount 30 of the tape reel 20 and the edge portion 32a of the housing 32, the plates 50 impinge upon the protruding portion of the inner circumferential surface 21 of the tape reel 20 owing to the expansion of the collets 34. Therefore, the collets 34 cannot be expanded any more. This allows an operator, who moves the lever 31 operatively connected to the collets 34, to recognize that the tape reel 20 was not set on the mount 30 properly.

10       The operation of the tape reel fixing mechanism of the above-mentioned construction will now be described.

      In the tape reel fixing mechanism, in which the tape reel 20 has not yet been inserted, the lever 31 is in a raised state as shown in Figs. 5(a) and 5(b), and the collets 34 are in an inwardly-drawn state. The side walls 43 of the lower housing 32, four rubber members 35, and the outer circumferential surfaces 50a of the plates 50 are positioned in the broken line 21 representing the inner circumferential surface of the tape reel 20.

20       Accordingly, the tape reel 20 can be set on the mount 30.

      The tape reel 20 set on the mount 30 is fixed thereto by lowering the lever 31. When the lever 31 is lowered, the slide cam 39 is moved slidingly to left until the slide cam 39 comes into contact with the adjusting screw 44.

25       The leftward sliding movement of the slide cam 39 is transmitted to the collets 34 via the arms 48 of the link

mechanisms 49. Consequently, the collets 34 are moved  
pivotally about the eccentric pins 33 and expanded toward  
the outer circumferential wall of the mount 30 as shown  
in Figs. 6(a) and 6(b). This causes the four rubber  
5 members 35, which are fixed to the collets 34, to press  
the inner circumferential surface 21 of the tape reel 20.  
Thus, the tape reel 20 is fixedly set on the mount 30.

In the reel fixing mechanism in the first embodiment  
of the present invention, the inner circumferential  
10 surface 21 of the tape reel 20 is pressed by the rubber  
members 35 provided on the four different portions of  
the collets 34 as mentioned above, to fix the tape reel 20  
to the mount 30. Thus, the rotational axis of the tape  
reel 20 is prevented from becoming eccentric with respect  
15 to that of the mount 30. Therefore, the tape reel 20  
can be rotated without inclining, and the tape edge is  
not damaged.

In order to release the settled tape reel 20 from the  
mount 30, i.e. when a operator removes the tape reel 20  
20 from the mount 30, the lever 31 in a lowered state is  
raised. Consequently, the slide cam 39 is moved to right  
until it comes into contact with the adjusting screw 45.  
Since the slide cam 39 and collets 34 are connected  
together via the link mechanisms 49, the collets 34 are  
25 reliably turned about the eccentric pins 33. Therefore,  
when the slide cam 39 is moved slidingly to right, the



collets 34 is reliably toward the axis of the mount 30. Accordingly, even when the rubber members 35 stick to the inner circumferential surface 21 of the tape reel 20, the rubber members 35 can be removed from the surface 21 reliably. When the collets 34 are turned toward the axis of the mount 30, the inner circumferential surface 21 of the tape reel 20 is released from the pressure from the rubber members 35. As a result, the reel fixing mechanism is again put in the condition shown in Figs. 5(a) and 5(b). Namely, the tape reel 20 on the amount 30 becomes ready to be removed therefrom.

The pressure force applied from the collets 34 and rubber members 35 to the tape reel 20 is regulated by turning screw portions 33c, which project onto the lower housing member 32, of the eccentric pins 33. When the screw portions 33c are turned, the axes of pivotal movements of the collets 34 are transferred. Accordingly, an amount of projection of each of the rubber members 35 can be varied in the state that the tape reel 20 is fixedly set on the mount 30, so that the pressure applied from the rubber members 35 to the tape reel 20 is also varied.

Referring to Fig. 8 showing a second embodiment of the present invention, guide pins 82, 83a, 83b for a slide cam 81 are provided on a lower housing member 80 of a mount for tape reels. In the central portion of

the slide cam 81, a groove 84 extending in the sliding direction of the cam 81 is formed. When the slide cam 81 is set in the lower housing member 80, the groove 84 is engaged with the guide pin 82, and the side portions of  
5 the slide cam 81 are engaged with the guide pins 83a and 83b. Namely, the slide cam 81 is disposed between the guide pins 83a and 83b, and can be slide on the lower housing member 80 as the cam 81 is guided by these three pins 82, 83a and 83b.

10       Plates 85 provided on each of the collets 34 have a length so long as to enclose substantially a half of an outer circumferential surface of the collets 34. Since this plate 85 has an outer circumferential side surface 85a longer than that of the plate 50 in the first embodiment,  
15 a tape reel improperly set on a mount 30 can be detected more accurately. When a tape reel is fixedly set on a mount, an inner circumferential portion of the tape reel 20 is sandwiched between the outer circumferential side surfaces 85a of the plates 85 and an edge portion 80a of  
20 the lower housing member 80 at a comparatively large length. This enables the inclining of the tape reel 20 to be reduced to a greater extent.

      The headless screws 87 are inserted into an upper housing 86 from a side surface thereof for the purpose  
25 of holding a pin 37, which constitutes a pivot of a lever 31, from both sides thereof. Owing to these

screws 87, the pin 37 is not loose from the upper housing member 86.

Referring to Fig. 9 showing a third embodiment of the present invention, rubber members 91 are provided on  
5 collets 90. Each of the rubber members 91 has a length so long as to enclose substantially the whole of an outer circumferential surface of collets 90. When a tape reel is fixedly set on a mount, the inner circumferential  
10 surface of the tape reel is pressed by the whole of the outer circumferential surfaces 91a of the rubber members 91. Accordingly, the occurrence of inclination of the rotational axis of the tape reel 20 to the rotational axis of the mount can be reduced more reliably.

As described above, in the present invention, each  
15 of collets for pressing and fixing a tape reel has elastic members positioned on different diameters of a reel fixing mechanism, and means for connecting collets and a slide cam together consist of link mechanisms. Owing to these characteristics, the rotational axis of a tape reel  
20 fixedly set on a mount does not become ecoentric with respect to that of the mount, and operation of the mount becomes reliable and smooth.

CLAIMS

1. A tape reel fixing mechanism comprising:

a circular housing including a base plate and a circumferential side wall, and supplied with the rotary force by a tape reel driving means;

5 pins planted on the vicinity of an outer circumferential portion of said base plate, and extending parallel to said side wall;

collets pivotably mounted at their respective one end portion on said pins, said collets having arcuate outer  
10 circumferential surfaces with a curvature similar to that of said circular housing, and elastic members provided on different portions of said outer circumferential surfaces;

a guide member provided in the central portion of  
15 said base plate;

a slide cam engaged with free ends of said collets and guided by said guide member; and

a lever engaged with said slide cam for enabling said slide cam to slidably move on said guide member, said  
20 collets turning in the direction to said outer circumferential side wall and to the axis of said housing, and thereby, said elastic members pressing against a tape reel and releasing said tape reel by operating said lever.

2. The tape reel fixing mechanism as claimed in Claim 1, wherein an axis of a tap in each of said pins is eccentric with respect to the rotational axis of said collet.

3. The tape reel fixing mechanism as claimed in Claim 1, wherein said elastic members are provided on a plurality of portions of said outer circumferential surface of each of said collets.

4. The tape reel fixing mechanism as claimed in Claim 1, wherein said collets further include plates for detecting a tape reel improperly set on said mechanism.

5. The tape reel fixing mechanism as claimed in Claim 1, wherein said guide member consists of a groove formed in said base plate of said housing.

6. The tape reel fixing mechanism as claimed in Claim 1, wherein said slide cam includes a groove in the central portion thereof, said guide member consisting of guide pins planted on said base plate of said housing, said  
5 slide cam being guided in said housing by engaging said groove with one of said guide pin.

:

7. The tape reel fixing mechanism as claimed in Claim 1, wherein said housing is provided with members for restricting the range of movement of said slide cam.

8. A tape reel fixing mechanism comprising:

a circular housing including a base plate and a circumferential side wall and supplied with the rotary force by a tape reel driving means;

5 pins planted on the vicinity of an outer circumferential portion of said base plate, and extending parallel to said side wall;

collets pivotably mounted at their respective one end portion on said pins, said collets having arcuate outer circumferential surfaces with a curvature similar to that of said circular housing, and elastic members provided on said outer circumferential surfaces;

a guide member provided in the central portion of said base plate;

15 a slide cam guided by said guide member,

link means for connecting free ends of said collets and said slide cam together; and

a lever engaged with said slide cam for enabling said slide cam to slidably move on said guide member, said collets turning in the direction to said outer circumferential wall and to the axis of said housing, and thereby, said elastic members pressing against a tape reel and releasing said tape reel by operating said lever.

9. A tape reel fixing mechanism comprising:

a circular housing including a base plate and a circumferential side wall, and supplied with the rotary force by a tape reel driving means;

5 pins planted on the vicinity of an outer circumferential portion of said base plate, and extending parallel to said outer circumferential side wall;

collets pivotably mounted at their respective one end portion on said pins, said collets having arcuate outer  
10 circumferential surfaces with a curvature similar to that of said circular housing, and elastic members provided on different portions of said outer circumferential surfaces;

a guide member provided in the central portion of  
15 said base plate;

a slide cam guided by said guide member;

link means for connecting free ends of said collets and said slide cam together; and

a lever engaged with said slide cam for enabling said  
20 slide cam to slidingly move on said guide member, said collets turning in the direction to said outer circumferential side wall and to the axis of said housing, and thereby, said elastic members pressing against a tape reel and releasing said tape reel by operating said lever.







Fig. 3.

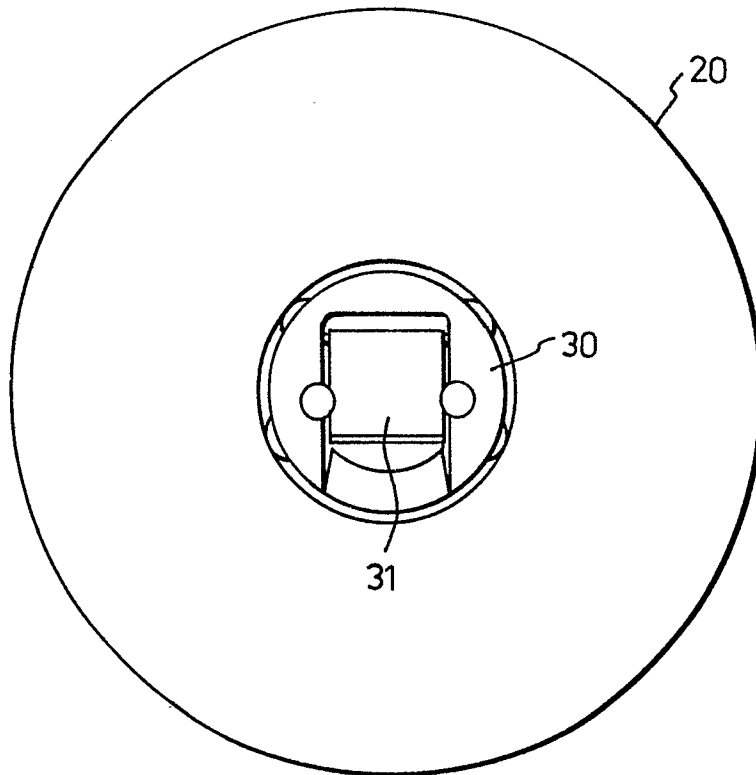


Fig. 7.

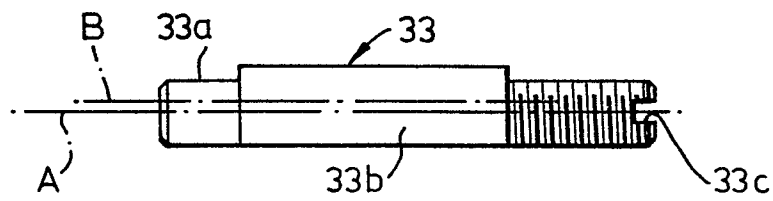
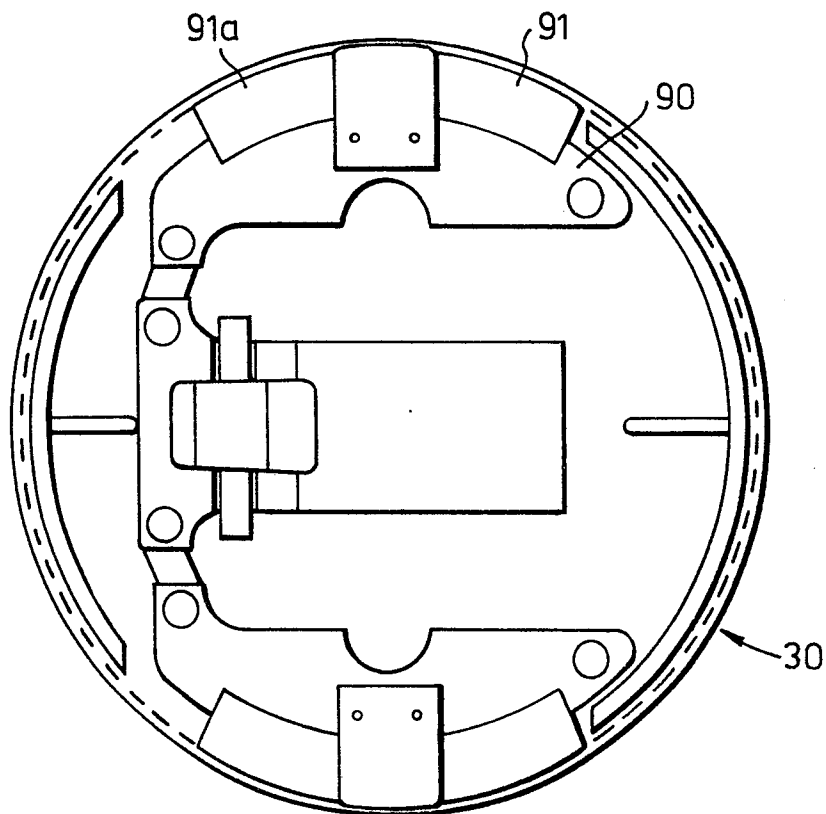


Fig. 9.



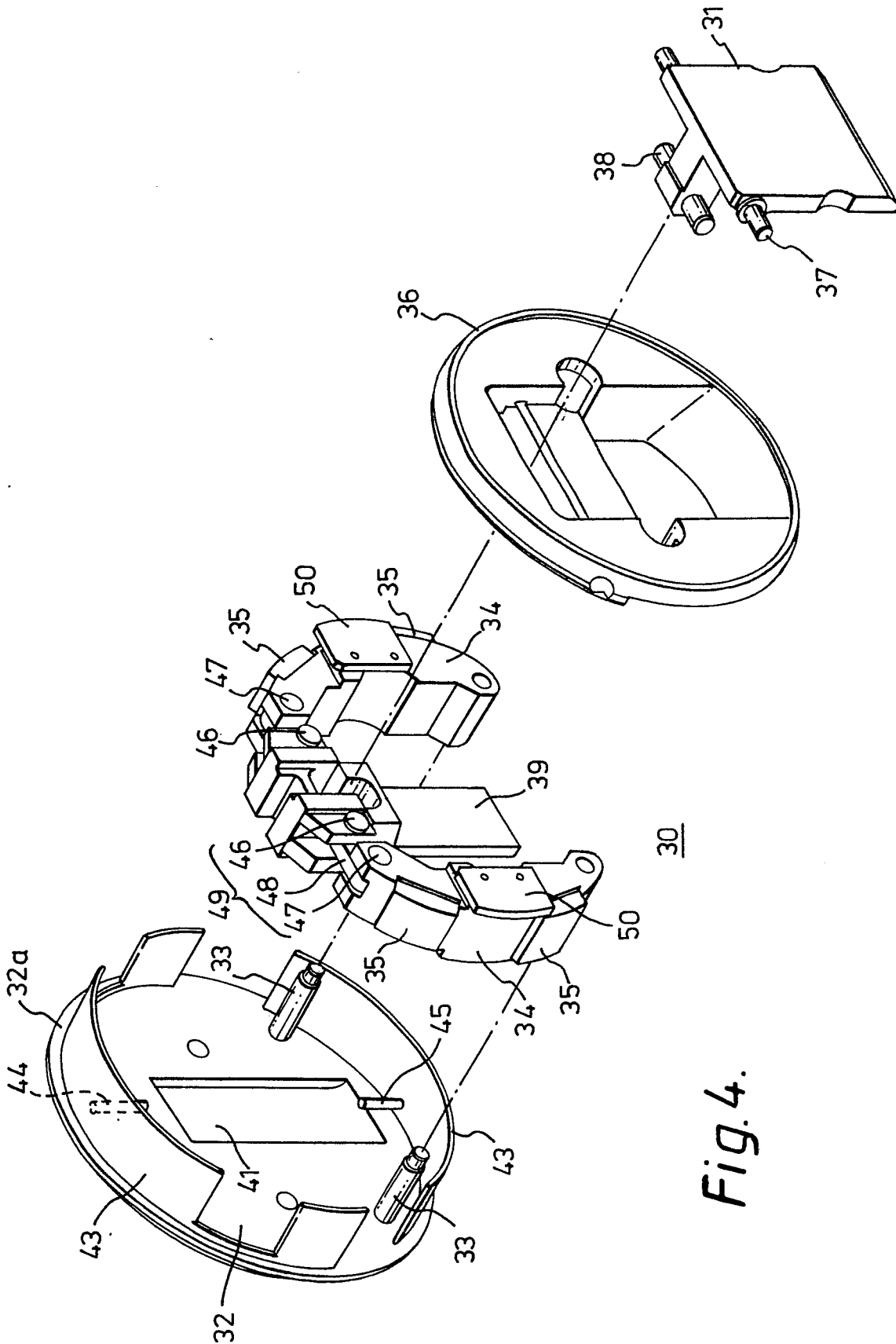


Fig. 4.

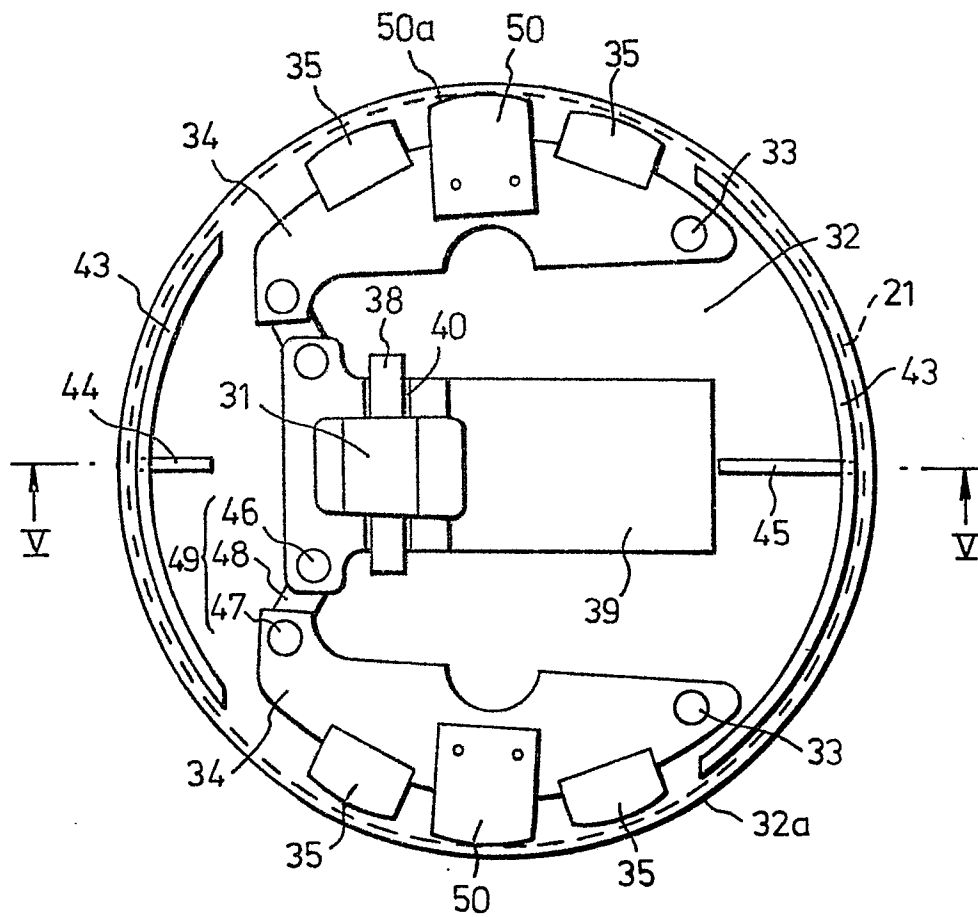


Fig. 5(a)

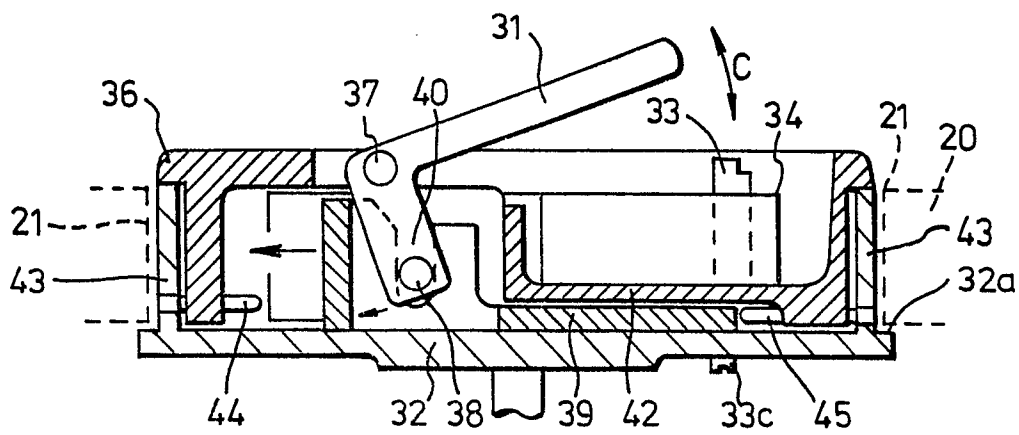


Fig. 5(b)



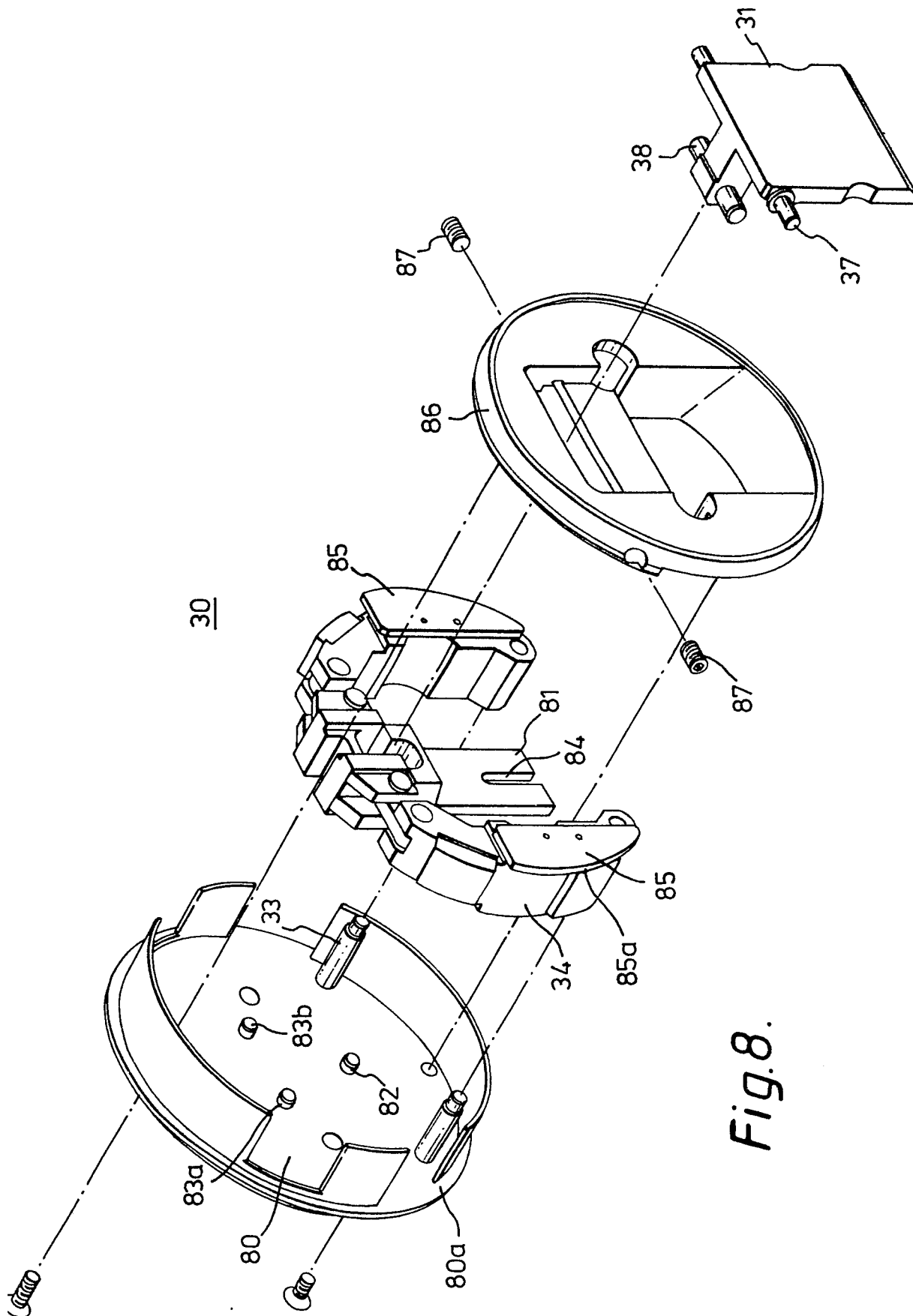


Fig.8.



| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                     |                                                                                                |                                                                                                                                                                                                                                                                              | EP 83304794.7                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Category                                                                                                                                                                                                                | Citation of document with indication, where appropriate, of relevant passages                  | Relevant to claim                                                                                                                                                                                                                                                            | CLASSIFICATION OF THE APPLICATION (Int. Cl. <sup>3</sup> )  |
| A                                                                                                                                                                                                                       | CH - A5 - 583 136 (AGFA)<br>* Fig. 1,2; claims 1-4 *<br>--                                     | 1,4,8                                                                                                                                                                                                                                                                        | G 11 B 15/00                                                |
| A                                                                                                                                                                                                                       | US - A - 3 532 286 (MALLETTE)<br>* Fig. 1-5; abstract; claims 1-15 *                           | 1,3,8                                                                                                                                                                                                                                                                        |                                                             |
| A                                                                                                                                                                                                                       | DE - A1 - 2 344 230 (VORWALD)<br>* Fig. 1,2; claims 1-8 *                                      | 1,8                                                                                                                                                                                                                                                                          |                                                             |
| A                                                                                                                                                                                                                       | DE - B2 - 2 243 073 (SIEMENS)<br>* Fig. 1-4; claims 1-5 *                                      | 1,8                                                                                                                                                                                                                                                                          |                                                             |
| A                                                                                                                                                                                                                       | DE - A1 - 2 516 987 (COMPAGNIE INTERNATIONALE POUR L'INFORMATIQUE)<br>* Fig. 1-7; claims 1-7 * | 1,8                                                                                                                                                                                                                                                                          | TECHNICAL FIELDS SEARCHED (Int. Cl. <sup>3</sup> )          |
| A                                                                                                                                                                                                                       | DE - A1 - 2 824 330 (AMPEX)<br>* Fig. 1-3; claims 1-10 *                                       | 1,8                                                                                                                                                                                                                                                                          | B 65 H 17/00<br>B 65 H 19/00<br>G 11 B 15/00<br>H 01 F 5/00 |
| A                                                                                                                                                                                                                       | DE - A1 - 1 474 343 (HONEYWELL)<br>* Fig. 1-4; claims 1-4 *<br>----                            | 1,8                                                                                                                                                                                                                                                                          |                                                             |
| The present search report has been drawn up for all claims                                                                                                                                                              |                                                                                                |                                                                                                                                                                                                                                                                              |                                                             |
| Place of search<br>VIENNA                                                                                                                                                                                               |                                                                                                | Date of completion of the search<br>10-11-1983                                                                                                                                                                                                                               | Examiner<br>BERGER                                          |
| CATEGORY OF CITED DOCUMENTS                                                                                                                                                                                             |                                                                                                |                                                                                                                                                                                                                                                                              |                                                             |
| X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document |                                                                                                | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                             |